REMARKS

Claims 1-20 are now pending in the application.

The rejections of the independent claims contained in the final rejection are fatally flawed and must be withdrawn. Simply put, the Examiner has wholly failed to establish a proper *prima facie* case of obviousness[1].

1) Neither reference discloses or even suggests taking a direct position measurement and an indirect position measurement.

Applicants are puzzled by the Examiner's continued insistence on ignoring the recitation of taking **two measurements** of the **position** of the machine part: 1) directly on the machine part; 2) and also indirectly at at least one location in a transmission chain. Instead, of accepting the plain and unequivocal meaning of the relevant claims, the Examiner simply states:

> A location in a transmission chain could be directly on the machine or on the machine part itself as disclosed by Delio.

(Advisory Action, at page 2).

This statement is totally irrelevant. Delio does not measure **the position** of the part at all, but instead takes only the sort of measurements that can be fed into the "chatter analyzer 36." None of the possible sensors disclosed in Delio (i.e., a rotational sensor, a chatter sensor, a displacement sensor, an acceleration sensor, a vibration sensor, velocity sensors, or audio sensors) could possibly give **the position** of the part. Rotational speed is not an

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[1] To establish a *prima facie* case of obviousness, three basic criteria must be met:

(a) First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings.

(b) Second, there must be a reasonable expectation of success.

(c) Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vick*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

See MPEP § 2143 - § 2143.03 for decisions pertinent to each of these criteria.

indicator of position. Vibration, displacement, noise, acceleration, etc., are not indicators of position. Together, rotational speed and vibration, etc., may be useful in determining the existence of chatter and how to eliminate chatter (e.g., by speeding up or slowing down the spindle). However, rotational speed and vibration etc., are useless in determining position.

Simply, put, whether Delio takes one measurement, two measurements, or a hundred measurements, Delio does not measure the position of the part, directly or indirectly.

Gebauer also fails to disclose or even suggest a direct position measurement and an indirect position measurement. Instead, Gebauer takes a direct position measurement only, and this single direct measurement is compared with an expected position.

The combination fails to teach or suggest all of the claim limitations. Accordingly, there is no *prima facie* case of obviousness, and the rejections must be withdrawn.

2) Adding a position measurement to Delio would either destroy the function of the reference or be totally superfluous.

Delio takes two types of measurements: 1) rotational speed of the spindle using the speed pickup sensor 14; and 2) information that can be fed into the chatter sensor 36 using, for example, two microphones 54 and 56, either alone or in conjunction with the secondary sensors 58 and 60, to detect vibration and/or sounds (see Col. 5, lines 37-39, and 60-66, as well as Fig. 1).

Once again, rotational speed is not an indication of position. Vibration, displacement sensors, noise, acceleration, etc., do not indicate position, but instead indicate vibration. In fact, the chatter recognition and control system 34 of Delio needs to know vibration and rotational speed. Col. 5, lines 30-33. A position measurement would be useless to the chatter sensor. Where then is the suggestion to add a useless measurement? There is no such suggestion, and there cannot be a *prima facie* case of obviousness.

On the other hand, a position measurement cannot detect chatter. Removing the vibration sensors of Delio and substituting a position measurement would render Delio non-functional. It is well accepted that the proposed modification cannot render the prior art unsatisfactory for its intended purposes. See MPEP 2143.01, citing *In re Gordon*, 221 USPQ 1125 (Fed. Cir. 1984). Thus, there would be no suggestion to eliminate the vibration sensors of the reference, and there cannot be a *prima facie* case of obviousness.

Nor would there be any suggestion to change the rotational sensor to any other type of sensor, as the whole point of the Delio reference is to keep rotational speed within a desired range to avoid chatter. See, for example, lines 1-8 of the Abstract. Without a way to detect chatter, the intended purpose of Delio is destroyed. Therefore, there would be no suggestion to make the needed modification.

Moreover, why doesn't Delio measure position? The answer is simple: there simply is no way to compare "a position" with "a rotational speed." Consequently, there can be no *prima facie* case of obviousness based even in part on Delio.

3) Eliminating the comparison of the actual position to a stored expected position in Gebauer destroys the intended purpose of the reference.

Gebauer adds nothing of relevance. Gebauer expressly teaches measuring the actual position of the machine part, and comparing the measured position with an expected position that has been previously stored. See Col. 2, lines 15-20, and Col. 3, lines 14-20. The expressly stated purpose is to inhibit motion if there is a difference between the measured position and the previously stored expected position. An "expected position" consists of "previously stored data" (Col. 2, line 18), and plainly is not a direct or indirect measurement of the actual position.

Simply put, there would be no suggestion to modify Gebauer to reach the claimed invention, as the needed modification(s) would render the stored data aspect of the reference entirely superfluous. Thus, there can be no *prima facie* case of obviousness based even in part on Gebauer.

Further, where is the suggestion to add a second and indirect position measurement, and where is the suggestion to now compare two measurements to the stored data? No such suggestions can be found, and there cannot be a *prima facie* case of obviousness.

New claim 20 is submitted herewith for consideration and recites, in part, taking a first position measurement of the part, the first position measurement taken directly at the part and being indicative of a first X position, a first Y position, and a first Z position in a Cartesian coordinate system, taking a second position measurement of the part, the second position measurement taken indirectly at a location in the transmission chain and being indicative of a second X position, a second Y position, and a second Z position, comparing the first and second position measurements to arrive at a position difference value, and using the position difference value to record a disturbance with consideration of the actual operating conditions on fulfillment of a prescribed criterion.

By comparison, the rotational speed indicator of Delio cannot possibly give an X, Y and Z position, and there would be no suggestion to modify Delio because such measurements are useless to Delio. Gebauer adds nothing as outlined above. Accordingly, claim 20 is in allowable form.

In view of the foregoing the above-identified application is in condition for allowance. In the event there is any remaining issue that the Examiner believes can be

resolved by a telephone conference, the Examiner is respectfully invited to contact the undersigned attorney at (312) 474-6612.

Respectfully submitted,

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